

STUDIES IN THE CANTHARIDAE III
(Coleoptera)

BY KENNETH M. FENDER

McMinnville, Oregon

When revisional work on the Cantharidae was begun some years ago, the author little realized the task he had assigned himself. It was thought at the time that the genus *Cantharis* was the only one of the larger genera requiring truly analytical study. Mrs. Fender (Dorothy McKey-Fender) was kindly permitted to accept this task. With the aid of Fall's work with *Podabrus*¹ and *Malthodes*² and Van Dyke's revision of *Silis*³, the author's chore would be largely compilation. The inaccuracy of this line of reasoning has been indicated by the new species described by Brown⁴ and Green^{5, 6} as well as those of the author. Until conditions permit completion of the revisions, it is hoped that these studies will somewhat compensate for the lack.

The genus *Podabrus* can be broken down into eight groups on the basis of the unguis characters of the males. These characters hold true for only the first group in the females. In the other groups the claws of the females are the same—all claws toothed. Females of the first group have the claws similar to the males.

The many recently described species suggest a more convenient method of arranging the species for keying. Grouping the species and referring to such groups seems preferable to citing some certain couplet in Fall's key. The following key to males of the genus is offered to assist in the assignation of species to their groups. It is designed to avoid the rather terrifying first couplet of Fall which has seven parts, all but the first two parts requiring the study of all of the claws.

¹Fall, H. C., 1928, Ent. Am., 8 (n. s.): 65-103.

²Fall, H. C., 1919, Ann. Ent. Soc. Am., 12: 31-42.

³Van Dyke, E. C., 1918, Journal N. Y. Ent. Soc., 26: 161-179.

⁴Brown, W. J., 1940, Can. Ent., 72: 161-163.

⁵Green, J. W., 1947, Trans. Am. Ent. Soc., 73: 63-76.

⁶Green, J. W., 1948, Trans. Am. Ent. Soc., 74: 75-82.

KEY TO GROUPS OF *PODABRUS* (MALES)

1. Claws in both sexes armed with a long acute tooth causing them to appear broadly cleft.....Group I
- Claws either finely cleft or with a broad basal tooth or some combination of these2
2. All claws armed with a broad basal tooth, the free angle of which may be rectangular or more or less acuteGroup II
- Claws of front tarsi finely cleft3
3. Both claws of middle tarsi finely cleft4
- At least one claw of middle tarsi toothed6
4. All claws finely cleftGroup III
- At least one claw of hind tarsi toothed5
5. Both claws of hind tarsi toothedGroup IV
- Outer tooth of hind tarsi toothed, all other finely cleftGroup VIII
6. Both claws of middle tarsi toothedGroup V
- Outer claws of middle tarsi toothed, inner claws finely cleft7
7. Both claws of hind tarsi toothedGroup VI
- Outer claws of hind tarsi toothed, inner claws finely cleftGroup VII

The species of *Podabrus* described to date may be assigned to their groups as follows:

GROUP I

All claws of both sexes armed with a long acute tooth causing them to appear broadly cleft.

<i>latimanus</i> Lec.	<i>punctulatus</i> Lec.
<i>ambiguus</i> Fall	<i>flavicollis</i> Lec.
<i>rugulosus</i> Lec.	<i>quadratus</i> Lec.
<i>appendiculatus</i> Fall	<i>modestus</i> Say
<i>knobeli</i> Fall	<i>intrusus</i> Say
<i>frosti</i> Fend.	<i>longicornis</i> Fall
<i>frater</i> Lec.	<i>diadema</i> Fab.
<i>cascadensis</i> Fend.	<i>brunneus</i> Fend.
<i>comes</i> Lec.	<i>protensus</i> Lec.
<i>conspiratus</i> Fall	<i>fayi</i> Lec.
<i>illex</i> Fall	<i>brunnicollis</i> Fab.
<i>pruinus</i> Lec.	<i>binotatus</i> Lec.
<i>limatus</i> Fall	<i>confraternus</i> Fall
<i>falli</i> Hopp.	<i>sierrae</i> Fall
<i>tomentosus</i> Say	<i>knowltoni</i> Fend.
<i>dreisbachi</i> Green	<i>viduus</i> Fall
<i>tricostatus</i> Say	<i>fulvus</i> Fall

<i>pygmaeus</i> Green	<i>tenuis</i> Fall
<i>brevicollis</i> Fall	<i>muleibris</i> Fall
<i>fissus</i> Lec.	<i>occipitalis</i> Fall
<i>brimleyi</i> Green	<i>mellitus</i> Fall
<i>nothoides</i> Lec.	<i>modulatus</i> Fall
<i>basilaris</i> Lec.	

GROUP II

All claws of both sexes armed with a broad basal tooth, the free angle of which may be rectangular or more or less acute.

<i>extricatus</i> Fall	<i>dietrichi</i> Green
<i>lanei</i> Fend.	<i>macer</i> Lec.
<i>tejonicus</i> Lec. (?)	<i>piniphilus</i> Esch.
<i>scaber</i> Lec.	<i>puncticollis</i> Kby.
<i>cinctipennis</i> Lec.	<i>extremus</i> Lec.
<i>limbellus</i> Lec.	<i>brevipennis</i> Lec.
<i>fumiganus</i> Green	<i>xanthoderus</i> Lec.
<i>punctatus</i> Lec.	<i>bolteri</i> Lec.
<i>excursus</i> Fall	

tejonicus Lec. was described from a female and has been tentatively placed in this group by Fall.

GROUP III

All claws finely cleft in the male, in the female all broadly toothed at base.

<i>fissilis</i> Fall	<i>vernalis</i> Green
----------------------	-----------------------

GROUP IV

Claws of male finely cleft on front and middle feet, toothed at base on the hind feet; in the female all broadly toothed at base.

<i>lateralis</i> Lec.	<i>pattoni</i> Lec.
<i>deceptus</i> Brown	<i>gracilis</i> Fall
<i>obscurevittatus</i> Fall	<i>instabilis</i> Fall
<i>secretus</i> Brown	<i>moestus</i> Fall
<i>puberulus</i> Lec.	<i>tetragonoderus</i> Fall
<i>simplex</i> Lec.	<i>altus</i> Fall

GROUP V

Claws of male finely cleft on the front feet, toothed on the middle and hind feet; all claws of the female toothed.

<i>laevicollis</i> Kby.	<i>citrinus</i> Fall
<i>fenestratus</i> Fall	<i>perplexus</i> Brown
<i>probus</i> Fall	

GROUP VI

Claws of front feet of male finely cleft, of the middle feet outer claw toothed inner cleft, on the hind feet both claws toothed; all claws toothed in the female.

heteronychus Fall *furtivus* Fall

GROUP VII

Claws of the front feet finely cleft, of the middle and hind feet outer claw toothed inner cleft; all claws toothed in the female. *Podabrus danielsi* Fend. is our only known representative of this group.

GROUP VIII

Outer claw of hind feet of male toothed, all other cleft; all claws toothed in the female.

<i>californicus</i> Fend.	<i>carmelensis</i> Fend.
<i>lucidatus</i> Fend.	<i>rossi</i> Fend.
<i>lutosus</i> Lec.	<i>corneus</i> Lec.
<i>smithi</i> Fend.	
<i>cavicollis</i> Lec.	

APHODIUS RECTUS MOTS. IN OREGON
(Coleoptera, Scarabaeidae)

The scarab, *Aphodius rectus* Mots., has been taken in fair numbers from cow dung in the Willamette Valley of Oregon. This species has been captured at Dayton and McMinnville with upwards of a hundred specimens having been collected. It has previously been recorded from East Siberia, Japan, China and Amur.

Two varieties are found here. The dark phase is almost entirely black occasionally with the elytral apices paler. The pale form has the elytra dark testaceous with the suture and a large triangular lateral area black, this latter dark area arising near the humerus, expanded to or almost to the suture at the apical fourth then rather abruptly truncated apically.

Drs. Ross and VanDyke and Mr. Hugh Leech of the California Academy of Sciences kindly compared this material with specimens in the Academy collection concluding that this is the species represented.—KENNETH FENDER, *McMinnville, Oregon.*